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COMMUNITY ARITHMETIC FOR THE SEVENTH AND EIGHTH GRADES

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I. INDEFINITE AIM IN THESE GRADES

The course of study in mathematics for the seventh and eighth grades has been in an unsettled state for a long time. There has been and is little agreement in regard to the content of the curriculum, not to mention methods of instruction. Some courses contain no algebra or generalized arithmetic and no geometry, except the traditional work in the mensuration of certain plane and solid figures; on the other hand, there are courses at the other extreme in which the major portion of the time in the eighth grade is devoted to algebra. The courses have had the catch-all character, consisting of a variety of topics lacking unity. The work has been criticized especially as lacking social meaning; many of the topics commonly given cannot be said to possess much direct or even remote meaning for the pupils, as an example of which may be mentioned cube root which is still taught in some schools, and such a topic as stocks and bonds, which, while relating to current business practice, is usually carried to such length as to lose most of the pupils. It has even been suggested that the instruction in the lower grades is more effective than that in the upper grades because the teachers in these lower grades know better what they are trying to accomplish. Without intending to join in any statement regarding the relative efficiency

of the teaching, this may be said, that in the first six grades the dominant mathematical purpose is to put the pupils in possession of the mechanics of the subject, to give them control over the essential number facts and processes and the ordinary tables of denominate numbers, whereas in the two upper grades there is no such clear-cut purpose in evidence.

II. THE SOCIAL AIM OF EDUCATION

In the meantime the social function of the work of the elementary grades has become a recognized factor in shaping the courses of study of the other studies. It is quite generally agreed that the school should bring the pupils into contact with matters of interest in their own community, always with the reservation that the materials of teaching should come within the scope of the children's power and interest. The term community is to be interpreted here in a broad way, extending gradually from the home to the town and state and then to the country at large.

III. TWO AIMS FOR UPPER GRADE MATHEMATICS

In view of the foregoing, the following two aims may properly be accorded a prominent place in determining the character of the mathematics work in the seventh and eighth grades: first, to maintain and increase efficiency in the fundamentals of arithmetic as taught in the earlier grades; second, to aid in the effort to give the pupils some insight into the life of the community in which they are to have a part. On the strictly mathematical side, it is important that the power the pupils have gained in the essentials of arithmetic shall be "conserved" and increased through appropriate drill. Whatever else of mathematical product the public may want of their schools, they unite in expecting that the graduates of the grammar grades shall be reasonably rapid and accurate in the fundamental operations of arithmetic, especially with such numbers as occur in daily life. Such skill is the product of persistent, well-directed drill; it is because of the neglect of such drill in the upper grades that much of the criticism of

the mathematics work is thoroughly justified. This drill work becomes especially necessary if the children are to retain their acquaintance with and become skilful in the manipulation of fractions. In regard to the second aim, it is beginning to be recognized that the mathematics must contribute its share of "social insight," to use a phrase of Professor Suzzallo's. This statement does not imply that in the earlier work also this should not be one of the aims; but, in the case of the upper grades, this aim seems to afford the unifying principle which has been so noticeably lacking. The pupils have been taught the essentials in the lower grades; they are about to leave school, many of them permanently, and should now have their attention turned toward the social whole of which they form a part. What better principle of selection of material for mathematics work can there be than this?

This doctrine meets with quite general approval; it is the practice of it which causes difficulty, a difficulty which arises from the fact that the character of drill necessary cannot be entirely placed in book form, and secondly, that it is unlikely that publishers will place upon the market a book which is designed to meet the needs of one community.

The purpose of this article is to call attention to an attempt to put this theory into practice. It will become clear that the general plan might be followed in any other community, but that the material used in the classroom would have to be selected to fit the conditions of the particular community served.

IV. THE PLACE AND CONDITIONS

In the Indianapolis schools, the classes are organized on a half-year basis; thus there is a 7B, a 7A, an 8B, and an 8A grade, in the order indicated. The course of study called for continued drill upon the essentials, as well as for attention to certain new topics. This drill was expected to be both abstract and concrete, but there was no specification as to the material to be used, except that it should be simple, modern, and within the experience of the children. It was likely to be of a miscellaneous sort, a practice which is unwise owing to the tend-

ency to scatter attention. Considerable time was being devoted to algebra. It was decided to systematize the drill work, to give it definite local meaning, and, in order to get additional time for it, to cut down the work in algebra. The modified work was introduced in grade 7A and above.

V. PLAN FOR GRADE 7A

For this grade the problems were grouped under the general topic "Problems of the Home," with the following subtopics: (*a*) grocery, meat market, and department store problems; (*b*) making change; (*c*) cost of heating and lighting the home; (*d*) cost of furnishing the home.

The set (*a*) consists of the problems which customers and clerks must solve daily. The problems are grouped so as to direct attention for a time toward grocery problems, then toward meat-market problems, etc. The material was collected by a committee of teachers from local tradesmen. The result is a collection of problems involving usual buying quantities under local conditions. Current prices are to be used and the problems are to be solved mentally as a rule. Some examples follow:

MEAT MARKET—SET A

1. Find the cost of a chicken weighing 3½ lbs.; 4 lbs.; 4¼ lbs.; 4½ lbs.
2. Find the cost of 1½ lbs. of pork chops; 2 lbs.; 2¼ lbs.; 3 lbs.; 2½ lbs.
3. Find the cost of a piece of bacon weighing 2 lbs.; 2¼ lbs.; 2¾ lbs.
4. Find the cost of a piece of ham weighing 5 lbs.; 6 lbs.; 6¼ lbs.; 6¾ lbs.; 7 lbs.

MEAT MARKET—SET B

1. How much lard should be given for 10 cents? 15 cents? 20 cents? 25 cents? 30 cents?
2. How much sirloin steak should be given for 10 cents? 20 cents? 25 cents? 30 cents? etc.
3. How much in weight should be given to a woman asking for a rib roast which will cost 35 cents? 40 cents? 45 cents? 59 cents? etc.
4. How much boiled ham should be given for 10 cents? 15 cents? 20 cents? 25 cents? etc.

GROCERY—SET C

1. Find the cost of ½ lb. of American cheese; of cream cheese; of Swiss cheese.

2. Find the cost of ½ pk. potatoes; of a small measure of potatoes.
3. Find the cost of ¼ lb. of tea; of ½ lb.
4. Find the cost of 2 bars of laundry soap; of three bars; of 5 bars.

GROCERY—SET D

1. Find the amount of rice to be given for 15 cents; 20 cents; 25 cents; etc.
2. Find the amount of tea to be given for 15 cents; 20 cents; 25 cents; etc.
3. Find the amount of pepper, allspice, cinnamon, cloves, etc., to be given for 5 cents; 10 cents.
4. Find the amount of shelled almonds, pecans, walnuts, to be given for 5 cents; 10 cents; 15 cents; etc.

GROCERY—SET E

1. Get together a list of supplies such as might be ordered by a family on each of the six days of a week. Have the bills for these made out on slips prepared like those used in the market. Have the total figured up daily and at the end of the week.
2. A woman ordered the following goods over the telephone: 25 cents worth of granulated sugar; 10 cents worth of corn meal; a 35 cent porterhouse steak; 10 cents worth of figs; 15 cents worth of cheese. Make out the sale slip for the order, fill in the amount of each article to be given for the money; find the total of the bill and the amount of change which the delivery boy must give the woman if she pays him with a $5.00 bill.

GROCERY—SET F. ECONOMICAL PURCHASING

1. Compare the cost per pound of sugar bought by the pound with the cost when bought by the 25-pound sack.
2. Compare the cost of laundry soap when bought by the bar and when bought by the box; when bought by the quarter's worth.
3. A housekeeper having canned a bushel of peaches, wishes to know the cost per can. Find it if she used a bushel of peaches, 9 lbs. of sugar, 100 ft. of gas, and 15 Mason jars. Compare this cost with the current price for a can of peaches at the store.

The department-store section consists of a list of various kinds of ribbons, laces, silks, embroidery, and trimming materials, with current selling prices and selling quantities. These items were selected because the dealings in them are usually in small quantities, almost always involving computation with fractions. The data was obtained direct from the local stores. The managers were entirely willing to co-operate. They said

that the average customer and many otherwise very desirable clerks were unable to obtain with any degree of certainty the cost of such purchases. Incidentally there is no small gain to the school system in having the business men know that the school is making a serious effort to meet such a situation. A few examples follow:

1. Baby ribbon, 2 cents, 3½ cents per yard; 19 cents, 32 cents per bolt.

Hair ribbon, 5″ to 7″ at 10 cents, 19 cents, 25 cents, 35 cents, 59 cents per yd. Quantities usually bought: 1, 1½, 1¼, 1⅜, 2, 2¼ yds.

Shoe ribbon, at 10 cents and 18 cents. Quantity bought: for 3-eyelet shoe 1½ yds.; for 4-eyelet shoe 1¾ yds.; for 5-eyelet shoe 2 yds.

2. Lace—cluny, imitation: ¾-inch at 10 cents; 1½-inch at 12½ cents; 3½-inch at 19 cents and 25 cents; real: ¾-inch at 25 cents; 3½-inch at 50 cents and 59 cents.

And thus for the various items this information is given. It is to be used in the making of problems. Also the following problems were given; they were taken direct from the canceled saleslips in one store:

Find the cost of ⅝ yd. of lace at $19.50 per yard; find the cost of 18¾ yds. of muslin at $1.12½ per yd.; 18¾ yds. of crepe at $1.25 per yd.; 4½ yds. of gingham at 6¾ cents per yd.; 8¾ yds. of gingham at 7½ cents per yd.

For written work the following type of problem is included:

Bought 4 yds. of china silk at 49 cents a yd.; 8 yds. of cluny lace at 59 cents; ⅞ yd. net at 75 cents; and 18 yds. of ribbon at 5 cents for a waist. What did the material for the waist cost?

As to the effect of this sort of work, some may object that while this is good correlation with domestic science it will not prove of interest to the boys; this may be true of the department-store problems. However, for both boys and girls these problems come very near to satisfying the present demand for school material which has vocational value and practical value. It is pertinent to point out that the average problems used in connection with the application of interest to business seem designed to meet the interests of the boys and not so much so those of the girls. In the case of the market problems, it may be objected that the work is too simple; that it belongs

in the fifth grade with fractions. Any of us will admit the need of constant review on fractions, and then besides, the pupils are getting more out of it than arithmetical skill. To illustrate, they brought saleslips from home and told of their watchfulness in purchasing for the family; one girl said that she had made the butcher give her another chop when she found him failing to give full weight; one boy told of adding up the weekly bill from the grocer and of finding a mistake on it. The work was real to them.

Under the topic "making change," the pupils are taught the addition method which is now commonly used in the stores. Under the topic "Cost of Heating and Lighting the Home," certain problems are introduced which give drill upon the local rates for coal, gas, and electricity.

VI. PLAN FOR GRADE 8B

For Grade 8B, the problems are grouped under the topic "Problems Relating to the Industries of the City and State," with the following sub-topics: (*a*) manufacturing interests of Indianapolis; (*b*) manufacturing interests of Indiana; (*c*) problems of certain lines of work; some railroad problems; some foundry problems; buying and selling paper; paying employees.

The first two sets are based upon the United States Census Reports, and the others were gathered in the city. They are designed to give the pupils an idea of these activities of their own community, of the number of employees, of the wages paid. They are expected to appeal to the vocational interest which should be growing at this time, and to show how arithmetic enters into the daily life of some of the workmen. A few examples will be given. Appropriate statistics are given to enable the pupils to solve the following problems:

Find the total number of wage-earners in 1900, and in 1905; find the total amount of wages paid in both years; find the total cost of manufacture in both years; find the total value of the manufactured products; find the total profits in each year and the per cent of profit; find the average wages paid in both years; compare the wages of the city wage-earner with those of the wage-earner in the state at large; what

percentage of the manufacturing establishments of Indiana are located in Indianapolis? What percentage of the manufactured products were made in Indianapolis?

It will be noticed that these problems involve about all of the essential processes, so that as review drill-work they are effective.

In a railroad shop running from 6:30 A.M. to 5:15 P.M., with ¾-hour off for lunch, what will a boy earn in one day at 12½ cents per hour?

How many pieces 8 inches long can be cut from an iron bar 29 inches long, if ¼ inch is wasted on each cut? Illustrate by a drawing, assuming that the original bar had the dimensions 1″×1″×29″.

A brass foundry has to make 72 lbs. of castings. If 1½ per cent of the metal is lost in the melting, how much metal must be melted to furnish the required amount?

A certain grade of paper is sold at the rate of 480 sheets for $28.00. How much does this average per sheet? When bought in smaller quantities 10 per cent is added to the list price. Find the cost of 240 sheets; of 160; of 100; of 50.

"Paying employees" proved to be a fruitful source of problems as well as an interesting topic to the pupils. Attention is directed to the fact that in paying employees, it is customary to give each individual his money in as large denominations as possible. For example, suppose that Smith is to receive $18.79; he would be given one $10.00 bill, one $5.00 bill, one $2.00 bill, one $1.00 bill, one 50c piece, one 25c piece and four 1c pieces. In determining the amount of money with which to pay several employees, it is obviously necessary to consider carefully the amount to be drawn from the bank in each denomination; this becomes a good problem from the school point of view.

VII. PLAN FOR GRADE 8A

For Grade 8A two sets of problems were provided: one set is designed for drill upon the essentials at the beginning of the term, and the other set is designed to give additional drill and to correlate with the civics work toward the end of the term. The former consists of problems based upon certain statistics which give the area, population, and wealth of Indianapolis during a term of years; some Indiana problems; and some

based upon the area, population, and wealth of the United States. The second set consists of problems under the following topics: (*a*) cost of the Indianapolis schools; (*b*) cost of the city government of Indianapolis; (*c*) money raised by taxes; (*d*) money raised by the sale of bonds; (*e*) money raised by special assessments.

The statistics upon which these problems are based were obtained from local, state, or national reports. The problems are designed to give the necessary drill in arithmetic, and to do that in a miscellaneous way; at each point, the main point of interest should be the topic being discussed, not the arithmetical work, but it is obvious that the arithmetical work must be of the very best if the results are to have any meaning. This is exactly the way in which arithmetic is usually applied, and it is certainly desirable that the pupils should have some experience of this kind. But the problems are designed also to give the pupils some acquaintance with the various matters being discussed; this will come about as a result of the constant effort to keep up interest in the topic being considered. The idea of average and per capita are taught in connection with this work. Some of the statistics and some of the questions follow:

COST OF IMPROVEMENTS IN INDIANAPOLIS DURING 1891–1908

Asphalt streets and alleys	58.54 miles....	$3,168,049.94
Brick streets and alleys	66.23 miles....	2,150,242.18
Wooden streets and alleys	22.93 miles....	1,291,318.47
Bitulithic streets	7.66 miles....	271,085.65

PROBLEMS

1. Find the cost per mile of each kind of improvement.
2. Find the cost per front foot of each kind.
3. Find the number of miles of streets and alleys paved.
4. Find percentage paved with each kind of pavement.

Under the cost of government, such questions as the following are raised:

1. Find the total expenditures for all purposes in each year (4 years).
2. Find the per capita cost for each year.
3. Find the percentage spent upon permanent improvements.
4. Find the percentage of increase in the per-capita expense from year to year.

Under the topic "Money Raised by Taxes," an itemized statement of the tax rate for one year is given to show the various funds to which the taxes are distributed, and the portion which each receives. Then additional tables are given to enable the pupils to answer the following questions:

1. Find the total tax rate for city purposes; for state purposes; for city schools; for county purposes.
2. Find the total tax rate for each year in the table.
3. What percentage on the dollar is this?
4. Find the increase in the rate 1900 to 1905; 1905 to 1906; 1906 to 1907; 1907 to 1908.

Under the topic "Money Raised by the Sale of Bonds," it is designed to give the subject of stocks and bonds a local meaning. An itemized statement of the bonded indebtedness of the city is given; attention is called to the limit of indebtedness, and to the margin of legal indebtedness. The bonds issued by the school board are also used as a basis for problems. For example:

1. In 1909 the Board of School Commissioners issued $50,000 worth of bonds, receiving $51,856 for them. What was the amount of premium? What was the premium on each bond? What was the per cent of premium on each bond?

The bonds bear 3½ per cent interest. If you had bought one of these bonds, what would you have paid for it? How much interest would you receive annually? What rate of income would you receive on your investment?

Under the topic "Money Raised by Special Assessments," attention is directed to the manner of computing the sewer assessments in the city, and it is a somewhat complicated problem, involving the computation of the area drained. The manner of computing street assessments also is given. This is a good example of the real purpose of this work; the intention here is that the pupils shall learn how the assessments are computed, not that they shall merely work some arithmetic problems; speaking more generally, the problem material is considered of the maximum importance, the arithmetical work being only a means to the end.

VIII. PLAN OF COLLECTING AND DISTRIBUTING THE PROBLEMS

The material for this work was gathered by a committee of teachers of mathematics, engaged in the seventh and eighth grades, working under the chairmanship of the writer, who was then connected with one of the local high schools; the work at all times received the interest and direction of the administrative officers of the schools. The problems were used in mimeographed form for one year, and were then printed privately by the Indianapolis Board of School Commissioners for free distribution to the pupils of the schools.

A STUDY OF A SUBNORMAL CHILD

VINNIE CRANDALL HICKS

Many teachers have had neither training nor experience in the recognition of subnormality among their pupils. They find a certain child failing to comprehend the work given to him, failing to enter into the group life of his classmates, yet they have no comprehension of the special problem which such a child presents. In consequence of this ignorance on their part, the child may be advanced from one grade to another as the years pass by, because his teachers are unwilling to keep him longer and he grows too large to remain among little children. When, at fifteen or sixteen, he may have reached the fifth grade, his instructors and even his parents begin to realize that there is something radically wrong. This realization years before would have saved much misdirected effort.

It is with this lack among our teachers in mind that the following description of a defective child has been written. The child chosen was not one rendered backward by any sense-deprivation, nor was he a case of congenital idiocy, but one whose outward appearance betokened little of his mental incompetence; just such a case, in fact, as might appear in the room of any teacher who reads this.

R. was eleven, rather stocky, and of very low stature, an inheritance from his parents. His head was of decidedly brachiocephalic type, but showed no noticeable asymmetry. The only facial peculiarities evident to the ordinary observer were a peculiar use of the eyes and a lack of expression. Contrary to the rule with many of the mentally defective, his hands were small and very delicate in form. He had the carriage and gait of an old man, though not troubled by either lameness or deformity. He stood habitually with the right knee bent and forward. This

had raised the left hip higher than the right. He had a clear, healthy skin, good teeth, good circulation, and seemed well nourished. His voice was low, harsh, and guttural, and he rarely varied from a monotone in speaking or singing. He had a peculiar closed utterance between his teeth, and was inclined to be slovenly in his enunciation.

When I began work with him about four months ago, he had no real knowledge of numbers at all. He could add like numbers up to fives just as he could repeat a Mother Goose rhyme, and he could often add 1 to a number under 10 in very much the same way. His writing was a rather pretty, round backhand but with little sense of line or proportionate letter heights. Nor did he know all of his capitals. He was as good a speller orally as an ordinary fourth-grade child, with the possible exception that his experience of words was not so large. In reading he knew only the word wholes which had been matters of frequent experience with him. Other words he had to construct orally and yet had little knowledge of phonetics to help him. His method of getting at a strange word was something like this: he would spell the word aloud, cast about in his mind for words familiar to him which began or ended similarly, try these, mentally comparing their spelling with what he saw before him, and so with the help of the context, he often made out the new word. But words which it would take him ten minutes to figure out when he was not interested in the story, he would recognize at once if the story happened to suit. The same phenomenon was noticeable in his reading in general. Only a most interesting and simply constructed story would hold his attention. Even with what *seemed* to be the best will in the world he wandered in his gaze, lost his place, and only with great difficulty concentrated enough to find it again. It might take him three-quarters of an hour to read an ordinary first-reader page, and his gaze would wander to all parts of the open book, or even of the room, a dozen times in a single paragraph.

This gives briefly his ability as a student of books when I began my work with him. He had been sent to public school at eight, but had to be taken out because he did not respond at

all to the teacher's efforts and also showed a fear of the other boys and a great sensitiveness to their noise. This auditory hyperaesthesia he displayed most markedly once at the country club, when he was nine I believe. He was dining there with his parents when the band, which happened to be near him, began to play. The first blare sent him flying from his seat and screaming about the room. He was quieted only with much difficulty. The only sign of the persistence of this sensitiveness which I have seen has been his lack of attention to lessons if he hears some unusual sound, with perhaps the phlegmatic remark, "That is an ugly noise." After his public-school experience, he was tried in a private school. Again his lack of responsiveness marked him as different from his fellows, and he was kept only three days.

To the ordinary teacher, a study of the history of this case would not be illuminating. He was an only child, born after eight years of married life. His mother too was an only child, and it is significant that she never played with other children or evinced the slightest interest in them. R. has undoubtedly suffered from too much mother and grandmother since the day he was born. Their constant attentions have removed from his sluggish nerve cells the natural stimulation they needed. The women attribute his apathy, lack of responsiveness, and general slowness to "pure ugliness." Like ugliness in many a more normal child, it is probably due to a definite physiological cause. In his babyhood R. had a severe attack of diphtheria, and from that time until they were removed last year, suffered from adenoids. The diphtheritic poison has seemed to clog the nerve cells so that they react very slowly to any stimuli, and under unfavorable conditions do not react at all. Fear is the chief unfavorable condition. But this is so invariable a characteristic of defective and backward children that I consider it an effect rather than a cause. A child like this one whose muscular co-ordinations are not properly developed and whose faculty of generalization is small, suffers constantly from being unable to cope with his environment physically and mentally. This demand on the nerve cells for work they are unfitted to do results in fear.

I have given R. a considerable number of the so-called psychophysical tests. Some seventeen of these were my own. I gave him also nos. 5, 6, 11, and 13 of the Norsworthy tests; the 6th of de Sanctis; and several of the Binet tests from the 12th on.

The results of these tests confirmed and amplified the more casual observations and gave me the following facts to work on: All of his senses seemed to be intact. Auditory perception was more acute than visual or tactual. Associations played a relatively small part in his memory images; yet numbers of two digits he remembered best by *visual* form association. Voluntary attention was very weak. Muscular sense was normal. The ability to compare, to appreciate relationships, and to control associations seemed good, and his capacity to reason about things no longer present to the senses was pretty fair. Ability in abstract ideas as shown by mathematical concepts was poor in the extreme; as shown in a knowledge of abstract words, was below grade; and as shown by ideas on everyday subjects, was pretty good. Motor ability was extremely poor. Power of concentration was so poor as to make one almost suspect the possible presence of *petit mal* epilepsy.

With the above record to go on and a history of being unable to stay in any school where he was placed, the question was where to begin. His parents, and parents are often a troublesome factor in these matters, wanted R. to learn the three R's and to do it at high speed. Yet what he needed first of all was training in concentration, in muscular co-ordination, and in visualizing. The lack of these caused all of his defects, or, more properly speaking, was the sum total of his defects. Under the guise of the aforesaid much desired three R's, calisthenics, and music, I have been striving for these qualities. I have engaged a competent teacher to give him calisthenics and dancing steps so that his larger arm and leg muscles might be brought into better co-ordination. In four months under her tutelage he has improved so that he is now in a dancing class which she carries on for normal children. And while he moves through the dances much like an old man in his dotage, he does his steps and arm motions correctly and sometimes keeps fair time to

the music. This same teacher has given him piano and voice lessons. Little progress is shown in the latter. He differentiates possibly two or three tones, but only when much urged thereto, and it takes a most lenient ear to hear them. His breathing exercises and study of tone placing do not seem to have had the beneficial influence on his general articulation that I had hoped. The piano work has been valuable for more than one reason. First, it satisfies a real love which the child has for music. Still better, it is a wonderful help in the training of the finer muscles; it increases the power of co-ordination of eye and hand, ear and hand, eye and ear. R. now plays simple scales and exercises from memory, reads a little, and plays in a very simple duet with his trainer. The piano work is increasing his motor ability and will certainly increase his powers of discrimination and comparison.

My own work with R. has been largely confined to reading, writing, spelling, and arithmetic. With a child of his temperament, it takes a long time to win confidence, and he is inclined to be curious or even resentful when any innovations on the regular line of his work are presented. So I have done considerable humdrum work with him which does not show much progress. Taking up the subject of study and methods employed separately, the easiest was:

a) Spelling:—When I began with R. he spelled well orally words of first-reader difficulty. His written spelling was poor, even if he had studied the lesson faithfully. This was partly due to his slow writing. He gave so much thought to that, that his memory of the word became confused. Moreover, his memory images were almost entirely auditory and he seemed to distrust the whispered letters which he uttered before writing. We have improved this written spelling by the use of many methods. The first was to give him a little more free writing. Then, though I did not forbid him to say the letters to himself, I encouraged him to write down a letter just as soon as he whispered it, not waiting until lack of self-confidence had made him forget it. In addition we had exercises in word-building and in phonetics. To give a different aspect to this branch of

the work and also an added interest, we played two games. One was a kind of anagrams. I gave him, shuffled up, the letters of some word in his day's spelling-lesson which had troubled him, and he rearranged the word. In this he has never yet shown any knowledge of common suffixes or prefixes or any ordinary letter combinations. He can sometimes tell by inspection an utterly impossible combination, but more often has to spell the letters orally before he can pass judgment; and this is true just the same if he has the word correctly spelled. The other game we have played is "hang." I mark off spaces for the letters of some word in his spelling-lesson. He guesses. For every letter which is wrong I put part of the body of a man on the gallows, ending with the rope around his neck. In this game R. finds it very hard to guess letters. He knows his alphabet, yet has no use of it. Almost always he will guess the vowels and then the consonants in order, as a very little child might. But the game helps to whip his flagging interest and to give him a little further insight into word-building.

b) Of my work with R.'s writing I can't say much. He has been having the finger, arm, and hand co-ordinations with his other teacher, and I have preferred to give most of our very limited time to other things. I have succeeded, however, in giving him a better idea of line and of letter proportion, though his capitals are still very faulty. His faults are those of backwardness rather than any genuine defect. He needs work on a large board instead of my small one. His writing is at present all finger motion.

c) Reading is in some ways the least encouraging of our work. The child knew how to read when I took him. And while he could read more difficult selections than the ordinary pupil in high first, he could not read them so rapidly. I gave him first the Hiawatha Primer, hoping that the Indian story would arouse in him the usual boyish interest. Though we read well over into the story, he entirely failed to exhibit this normal interest. Yet, strangely enough, in spite of this undeveloped group sense, he had enough maturity of taste to criticize the frequent repetition in the story. He never learned to read the longer

words like Hiawatha, Nokomis, warriors, etc., with any surety. Any word which began with a capital might be any one of the proper names. But if he made a mistake in reading and I spelled the word for him or had him spell it orally, he gave it correctly at once. It is very seldom indeed that he has come to any word in any of our lessons that he did not recognize when he *heard* its letters. I abandoned the Hiawatha Primer because I saw that it was not serving the purpose for which I had hoped, viz., to rouse him from his apathy. And I may say in passing that this primer is as difficult as most second readers. We next tried the first reader of the Indiana Educational Series, and this went better so far as interest was concerned. The stories were more nearly on the level of R.'s intelligence. Our greatest difficulty in working with both of these books was lack of concentration. Voluntary eye fixation seemed impossible for him. At any slight trouble in reading a word, his gaze would wander over both pages of the book, and perhaps around the room. If I said "R., that word is not on the wall," he would bite his lip, turn his head in proper position for reading, and still look out of the corners of his eyes in any direction but that of the book. If I pointed with a pencil as he read or allowed him to point with his finger, this trouble was greatly minimized. And, by the way, when he points at a word, he places his finger over the word. It remains a mystery to me how he sees the word to read it. I have never told him not to point at the words with his finger, but have gradually got him into the habit of holding his book alone. This takes both of his hands and eliminates his pointing. I myself point for him as little as I can, yet it is often necessary. I start him on his day's reading independently. He may read the first paragraph without wandering, but probably not. Rather than have him wait indefinitely while finding the place, I indicate it for him. His interest must be maintained even at the expense of good methods; for, as his attention weakens, his spells of wandering increase in frequency and in length. His lack of concentration has been much increased since we began to read the second reader of the Indiana Educational Series. The first two books read were arranged

primer fashion, a sentence to a line. But this more advanced reader continues the thought from one line to the next in the usual way. When R. reaches the end of a line and feels that there is still more to follow, he is much inclined to rest by looking elsewhere. He has no difficulty in finding the beginning of the next line if his attention is in good working order. Reading a sentence or a paragraph over if he has wandered particularly in it does not help him at all. He is just as likely to show lack of concentration the third time as the first, in fact more so. The feeling that I am not satisfied with him brings that half-fearful state which seems to clog his nerve cells. Moreover, the element of fatigue enters in adversely. It would be well to mention here the entire lack of understanding which parents display toward this fatigue factor. For instance, because this lad is a strong, healthy child, his mother scorns the idea that his lessons may fatigue him. Lazy or ugly is her dictum. She cannot realize that the accomplishment of a seemingly very simple mental task may mean hard labor for him. It is true that he could do many things if he "paid attention," which he does not do now, but that very matter of attention is what lies beyond his control at present. And the teacher who suffers from some consistently inattentive pupil should study all possible causes of this inattention and attempt to remedy them before admitting that the child in question is wilfully bad.

One method which I use to help R. concentrate is to cover both pages where he is reading with a blank sheet of paper, leaving a slit just large enough to show two lines. This device does not keep his attention from wandering, but it does help him to find the place when he has lost it, and so keeps him from feeling discouraged. The fear element has to be considered constantly in his reading. When he is ready to begin his day's reading, he will put off the dreaded moment by questions, suggestions, and much hemming and clearing of his throat. And when at last I have encouraged him to begin, his tones are closed in behind his teeth and only emitted with the greatest seeming difficulty. His mother tells me that he reads much more fluently at home, especially on the first reading of a story when his interest in it

is fresh. So I am now trying the scheme of giving him only a little to prepare and taking some time every day for reading new matter. So far I can see little difference. He will not read well until his power of sustained attention is increased, and that I am working on in many different ways. It enters constantly into his work in dancing and music with his other teacher, with the advantage of interest to help it along. It enters too into his work in mathematics, and that is my next topic.

d) The attention which is necessary during visual processes is the kind which R. lacks. I have tried to increase this by playing with him a certain game of solitaire. In order to win he must pay the closest attention to every card turned up in my hand as well as to at least nine cards on the board. His improvement in this has been most marked. At first I had to hint and wait whenever one of his cards was turned up, but now he is alert and watchful. In addition to this value of the game, he is learning to associate a figure with the actual number of single things it represents; he is becoming more and more familiar with the simple sequence of numbers; and in adding his cards after each hand and in keeping score, he is learning to perform actual arithmetical processes. His interest in the game makes him forget that he may make a mistake in answering, and he will perform additions which would be impossible for him if asked abstractly.

Aside from this game, I have taken up mathematics with R. according to a logical sequence of the mental processes necessary. First came the actual drill in counting so that he might know the numbers in their proper juxtaposition. This is foundational. He knew how to count to 100 when I took him, but his counting was slow and laborious, and any attempt at retrogression confused him. This of course meant that the idea of subtraction was difficult for him. Practice has caused a marked improvement in the rate and ease of his counting, and has so increased his perception of the propinquity of the numbers that he goes backward with considerably greater ease than at first.

Next came the training in the combination of numbers. He could already add similar numbers, but only as a matter of word

memory. It meant no understanding of the process involved. And he was as likely to say 7 plus 1 are 9, and 8 minus 1 are 4 as not. So in addition to his drill in oral counting, I gave him additions of 1's on paper, putting at the bottom of the paper the sequence of numbers from 1 up as far as he would need them. As he did his examples he would place his finger on the large number, then move it one number to the right in order to add one to the number. To subtract one he moved his finger one number to the left of his starting place. This work was valuable in fixing his attention both visually and tactually on one of the numbers. Moreover, it gave him a confidence in his own powers, because by taking pains he could always get the correct results. This practice we carried on for many weeks and covered all additions up to 20, and all subtractions in which the subtrahend was not over 4 and the minuend over 12. His work on paper was almost always correct. This was partly due to help at home, though I had expressly forbidden it. Written work done under my own eye was good enough, however, so that I felt sure that the child understood what he was doing. But the many days spent in this practice seemed to leave no mark on his memory images. He might work out 5 plus 6 on paper correctly day after day, but if I asked him to give me their sum offhand, he would reply almost anything. That the work did have its effect, however, I am sure, for in counting up his score in our solitaire he would give results before he stopped to think what he was doing, and in the majority of cases they were right. This building up of number knowledge does not yet go beyond 10. Along with this visual and auditory drill I gave a little that was tactual. Brightly colored wooden sticks about four inches long I gave to him in bunches of five, with the instruction to separate the bunches in as many different ways as he could. With some help he got all of the six ways, and I had him write down the figures representing these divisions. We worked several days on these component parts of five, and with good results.

My next effort was to begin to wean him away from any sense props for his number work. This sounds like teaching him to use a certain method and then teaching him not to use it. But

the weaning process will necessarily be long and slow. I have built up for him a series of number perceptions of various kinds. Now, when the stimulus is presented to him I must try to have his motor reaction to it come in just one instead of in several ways. For instance when I tell him to add 6 and 2, I don't want him to scan a list of numbers for 6 and then look 2 beyond for the correct sum. Nor do I want him to begin to feel of six fingers or sticks or to make six lines on a piece of paper. He may depend on any one of these acts to get his answer, but it must be mentally. This power he has already acquired with 1 and 2 additions. Of the various perception possibilities which I supplied to him, he has chosen the auditory images. Up to 20 he can make his 2 additions correctly, abstractly, though slowly. He is at present working on 1 additions up to 100. His power of abstraction is not yet strong enough to enable him to think 3 beyond a number, but with this start, greater ability will surely come. The worst was over when he acquired his first idea of the quantitative value of numbers. And now every day of drill in these simple number processes is increasing his feeling of familiarity with them, decreasing his fear of making absurd mistakes, rousing his interest in the things that can be done with numbers, and making his memory images of number combinations stronger and stronger.

In closing this report I should say that I have had this child only an hour and a half twice a week, three hours altogether, and his other instructor has had him two hours. Unless one could actually see the unbelievable slowness with which he responds to any stimuli, one could hardly realize how difficult it has been to get results in our brief time together. In addition to the regular drill in the fundamentals described above, I have given him now and then a letter or a composition to write, have had him reproduce in writing a short written story, have done a very little work in geography by having him study the globe, construct statements about it, then write them down, and later copy them in a book in ink. (He had never worked with ink.) For the sake of the general tonic effect, I shall from this time add history, geography, and science to his regular studies.

I am now at work on a list of books which his mother can read to him with benefit. She is very anxious to assist, but is quite without ability. This will illustrate. Recently I let her take a copy of some of Mara Pratt's history stories, telling her to read them to R. as she found time and that I would then question him about them or have him write essays on them. Two days later, at R's next lesson, she returned the book proudly stating that they had read all of the stories. Of course for my purpose or for any other, such cramming was perfectly useless. But I hope in the future to improve this condition of things so that she can give some intelligent help by home reading and bring the body of R.'s information up a little nearer that of the normal child of his age.

The case is one of considerable interest just because it is so puzzling. No ordinary school will keep the child. The public subnormal rooms are not fitting places for him. Private tutelage is all that is left. Yet it is my firm conviction that the boy needs the stimulating influence of school life more than he needs anything else. Moreover, the money which his parents pay for an hour a day of private work would pay for ten times as much tuition in a school like our elementary school. But, unfortunate though this may be, at present the ordinary school is no place for R. or children like him. They only worry their instructors, take a larger percentage of the school time than is their rightful share, often become marks for the ridicule of their playmates, and suffer sadly from their confinement to a school régime absolutely unfitted to their abilities. Every teacher from first grade to fifth should be able to recognize these cases and eliminate them from the schoolroom. For such recognition, studies similar to this one of R. should be helpfully suggestive.

A COMPARATIVE STUDY OF THE RESULTS OBTAINED IN INSTRUCTION IN THE "SINGLE TEACHER" RURAL SCHOOLS AND THE GRADED TOWN SCHOOLS (*Concluded*)

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GRAMMAR QUESTIONS

2. Write the names of the months of the year in one column and their abbreviations in another.

3. What is a pronoun?

4. Name the different persons in the personal pronouns.

5. Supply the proper form of WHO in the following: A babe was borne to Danae, a smiling boy . . . . she names Perseus. For years she kept him hidden, and not even the women . . . . brought food to the hiding place knew about him.

6. Write correctly: Go very quick. I seen him do it. Them books are mine. Why shouldn't us girls form a club?

7. Compare the adjective "difficult."

8. Compare the adjective "fine."

9. Tell how the following words in capitals are used. This TEST is EASY. I took my TEST this morning.

10. Write a letter to McClurg and Company, Chicago, Illinois, ordering a copy of Tennyson's poems.

11. Tell to what part of speach each of the words in capitals belongs. He ran FAST. He was a FAST runner. They FAST twice a week. The FAST lasted forty days.

12. Fill in the blanks with shall or will.

a) We . . . . break through the ice if we are not careful.

b) We . . . . try to do our duty.

c) He . . . . misspell his words.

d) They . . . . be captured if I can help it.

13. Give an illustration of an indirect object.

14. Select the correct word from among those in parentheses and write it over the dash.

a) I shall not wait —— you more than five minutes (on, for).

b) It is a question between you and —— (me, I).

15. What is a clause?

16. Name the tenses of the verb "learn" in the indicative mood.

17. Write a sentence containing a preposition. Underline the preposition.

18. What is meant by number in verbs?

19. What is meant by voice in verbs?

20. Pick out the transitive verbs in the following sentences.

It rains and the wind is never weary.

Ellen was elected president of her club.

John reads German easily.

Into the valley of death rode the six hundred.

The first of these questions was not evaluated as were the others, because in it the mistakes were counted. There were two common mistakes found in the papers, the spelling of February, and the omission of periods in the abbreviations. In the records no effort was made to keep these two separate, but all are recorded together.

Question 10 was another exception. Both it and Question 2 are omitted from the curve. In marking the results from Question 10 it seemed best to divide the letter into five parts, the "heading," the "recipient's address," the "salutation," the "close," and the "mistakes in punctuation." The following abbreviations were used: H, for heading; RA, for recipient's address; S, for salutation; C, for close; and E, for errors. The errors were mistakes in spelling and punctuation. If there were no mistakes in the letter, it would receive the following set of grades:

H	equals 2
RA	equals 2
S	equals 2
C	equals 2
E	equals 0

If there was a mistake in the arrangement on the page of any of the above elements, that element was marked 1; if it was omitted, it was marked 0. If there was an extra capital in the "close," the mark was 1. In the other questions the method used in the previous subjects was used. Each part of a question was graded separately and the results recorded in a separate column.

TABLE VIII. GRAMMAR

PERCENTAGES

Q	"ONE TEACHER" SCHOOLS		GRADED SCHOOLS	
	57 Boys	110 Girls	109 Boys	95 Girls
2	25	16	..	..
3	96	99	97	97
4	99	95	93	95
5*a*	85	79	82	84
5*b*	99	100	95	96
6*a*	86	93	80	92
6*b*	99	100	98	99
6*c*	100	100	94	99
6*d*	73	89	90	97
7	81	84	66	72
8	86	89	74	77
9*a*	76	91	87	92
9*b*	65	74	68	69
9*c*	61	85	79	85
10*a*	1.5	1.7	1.7	1.4
10*b*	1.4	1.7	1.4	1.6
10*c*	1.4	1.3	1.4	1.2
10*d*	1.2	1.2	2.4	1.2
10*e*	4.0	3.7	1.3	4.2
11*a*	69	78	64	69
11*b*	78	84	75	87
11*c*	75	83	79	87
11*d*	81	89	85	93
12*a*	49	61	55	59
12*b*	59	62	60	56
12*c*	83	93	86	83
12*d*	63	71	73	64
13	46	56	33	42
14*a*	95	94	92	95
14*b*	39	49	50	57
15	59	71	57	68
16	49	52	55	55
17	85	89	83	88
18	38	43	28	42
19	28	45	33	42
20*a*	31	28	17	29
20*b*	69	82	52	75
20*c*	78	78	57	71
20*d*	29	32	19	31

The "mechanical" and "reasoning" grouping was again used. Questions 2, 3, 4, 15, 18, and 19 are classed as "mechanical," and 5, 6, 7, 8, 9, 10, 11, 13, 14, 17, and 20 are "reasoning."

RESULTS

The full line is below the broken line for the greater part of the time; in fact it gets above the broken line only on

Questions IX*a*, etc., XI*d*, XIV*a* and *b*. In the use of "shall" and "will" in Question 12, the average for both systems of schools is 66 per cent. The average for the grades is 65 per cent, and for the "one teacher" schools 67 per cent. In the

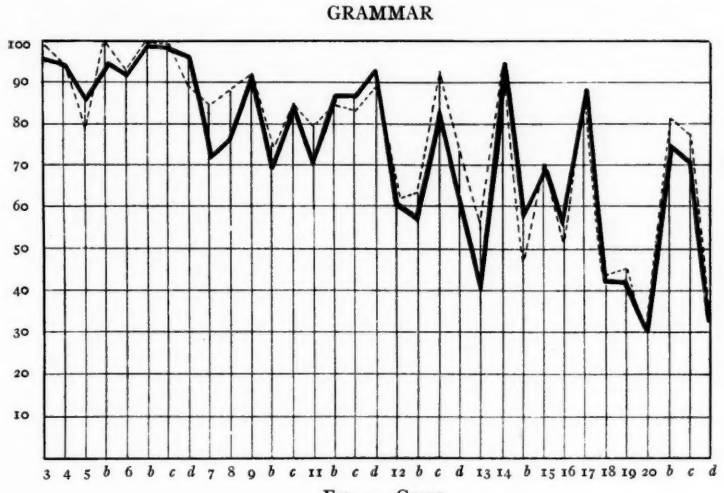

FIG. 7.—GIRLS

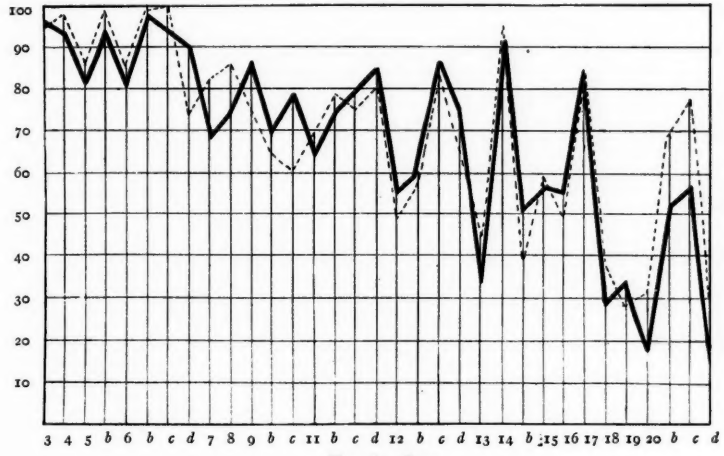

FIG. 8.—BOYS

selection of the transitive verbs in Question 20, 744, or 49 per cent of correct judgments were made. This would seem to indicate that they knew nothing about the use of the term, because by the laws of chance they should have been able to choose 50 per cent correctly if they knew only the meaning of the term "verb." In the returns from the graded schools it was evident that a large number were not even able to pick out the verb. In grading the papers it was often observed that "never" and "easily" were chosen as verbs.

In Question 2 the percentage of mistakes in the "one teacher" schools was one higher than found in the graded schools. Question 10, the letter, received the following grades:

Q	G	O. T.
H.....	83	89
RA.....	75	86
S.....	89	69
C.....	63	64
E.....	2.47	3.98

The most frequent mistake made in the "heading" was in its position on the page. It was often placed at the end of the letter. The "recipient's address" was sometimes omitted and sometimes given the position that belonged to the "heading." The "salutation" was sometimes omitted, sometimes placed on the same line with the first line of the "body" of the letter, and sometimes on the right side of the page. There were two mistakes that prevailed in the "close," the capitalization of both words, and the use of "respectively" for "respectfully." The "errors" were chiefly mistakes in punctuation. In this respect the grade pupils surpassed the other group, having on the average about 2.5 mistakes, while the other group had about 4 mistakes per letter. The grade children also excelled in the use of the "salutation."

HISTORY

Questions in chronology, biography, and geography were included in the list in United States history. This classification was in no way connected with the other attempt at dividing the

list into the two groups, "mechanical" and "reasoning." Again it is to be observed that this classification is only suggestive of the general character of the questions, because it was impossible to avoid overlapping in the questions.

HISTORY QUESTIONS

1. Name the nations that made explorations in America in the sixteenth century.

2. Why was the work of Paul Jones beneficial to America during the war for independence?

3. Who is governor of Iowa?

4. Why did the American colonists object to the "Stamp Act"?

5. What happened on the following dates: 1492, 1620, 1776, 1619, 1789, 1803?

6. Who was General Wolfe?

7. Why do we consider Lafayette a great man?

8. Who was president of the Constitutional Convention?

9. What effect did the invention of the cotton gin have upon slavery?

10. Who was the founder of Rhode Island?

11. What remarkable address was given at Gettysburg?

12. What object did Penn have in founding a colony in America?

13. What part of America did each of the countries mentioned in the answer to Question 1 settle?

14. Why was the Boston Tea Party organized?

15. Why was the "Fugitive Slave Law" passed?

16. For what were U. S. Grant, James Fenimore Cooper, William Henry Harrison, and Grover Cleveland noted?

17. Why was the "Monroe Doctrine" good for North and South America?

18. Show how important executive officers (such as ministers, judges, and members of the President's cabinet) are appointed.

19. Why was Grant's campaign against Vicksburg necessary in the Civil War?

20. Why were Forts Duquesne, Crown Point, Ticonderoga, Niagara, Acadia, and Louisburg, Quebec, objective points for the English during the French and Indian war?

In this subject the same method was used as was employed in the other subjects. All questions that were not correct were marked 0, and those that were correct were marked 1. Unless four countries were mentioned as having made explorations in America during the sixteenth century, the answer was considered incorrect. The answer to Question 9 was considered imperfect

if it did not mention the reasons why easier seeding of cotton increased the demand for slaves. "William Rogers" was not considered a correct answer to Question 10 and was marked 0. The President alone has not the power to appoint executive officers, and unless the answer mentioned specifically the function of the Senate in that work, the question was marked 0.

TABLE IX. HISTORY

PERCENTAGES

Q	"One Teacher" Schools		Graded Schools	
	57 Boys	106 Girls	106 Boys	100 Girls
1	65	62	45	51
2	76	66	67	59
3	75	73	58	69
4	41	42	53	56
5*a*	97	98	94	99
5*b*	83	88	61	64
5*c*	79	83	59	63
5*d*	41	54	29	36
5*e*	48	56	35	39
5*f*	57	63	47	60
6	37	26	40	29
7	58	52	64	57
8	50	52	43	42
9	41	41	51	52
10	59	57	68	64
11	74	66	63	68
12	59	66	75	82
13	64	53	46	49
14	64	73	88	82
15	51	53	60	69
16*a*	88	85	73	65
16*b*	39	46	34	26
16*c*	74	85	63	67
16*d*	81	79	51	59
17	47	43	42	53
18	9	9	9	6
19	39	33	27	17
20	9	10	9	6

The curves in Fig. 9 show the boys from the grades reaching the highest and lowest points. The boys from the "one teacher" schools have a more uniform, and at the same time higher, average curve. The same condition is found to exist in Fig. 10. Other figures show a marked similarity in all points, and indicate a superiority on the part of the children from the "one teacher" schools.

In general the two curves take the same direction, but there are three exceptions. In stating the effect the invention of the

cotton gin had on slavery (Question 9) the full curve goes up to 54 per cent and the broken curve down to 41 per cent; on Question 11 (the Gettysburg Address) the full line fell to 64 per cent and the broken line rose to 71 per cent; in stating the reasons for Penn's settlement of Pennsylvania in Question 12

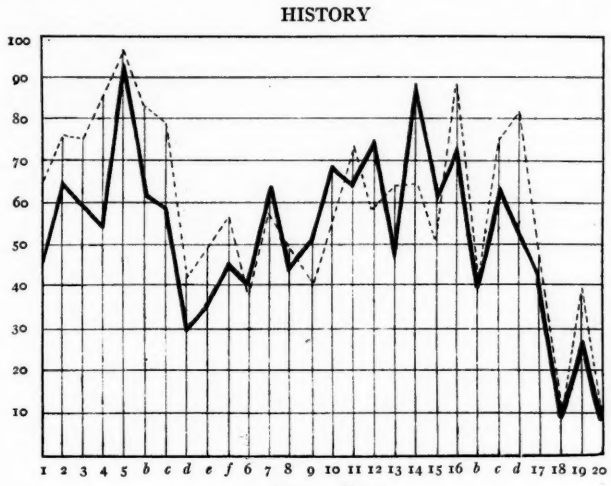

FIG. 9.—BOYS

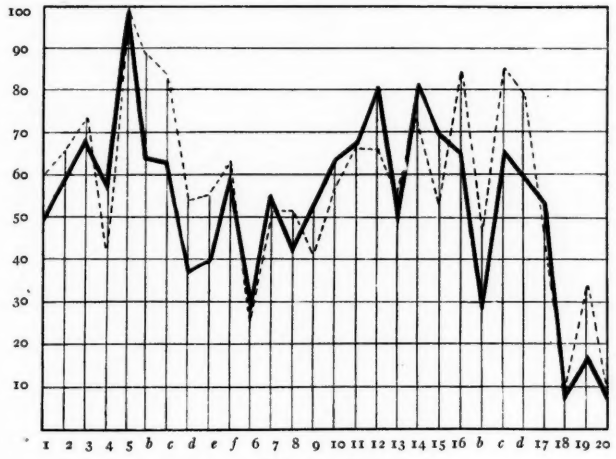

FIG. 10.—GIRLS

the full curve rises to 77 per cent while the broken curve falls to 63 per cent. The curves reach their highest point on the first part of Question 3 and their lowest point on Question 20.

The "range" for both systems of schools is the same, 84 per cent.

SPELLING

The spelling examination questions were arranged in three parts, the first being taken from Dr. Cornman's study, p. 95, the second from the same source, p. 92, and the third, a composition on "Coasting." In this examination it was necessary for teacher to pronounce the words and dictate the sentences.

Part one was made up of words that are not often used by children but are all found in spelling-books. In marking the papers no distinction was made between a word that had only one mistake and a word that had more than one. The words were numbered in order, from one to fifty. But two marks were used, 1 and 0. The questions follow:

1. Pronounce the following words to be written by the pupils: anxious, accomplish, acquire, alcohol, ancient, appearance, assistance, auctioneer, brilliant, cashier, character, circular, cologne, conceit, counterfeit, cylinder, diameter, disappoint, divisible, excellent, experience, fashionable, flourish, glazier, guest, idolize, important, innocent, irritate, legible, lieutenant, magnetize, messenger, mischievous, mucilage, obstinacy, orchestra, particular, penitentiary, petroleum, pleasure, poultice, profession, receipt, refrigerator, repetition, sacrifice, secretary, sincere, spectacle.

2. Dictate the following to be written by the pupil: While running he slipped. The weather is changeable. His loud whistling frightened me. He is always changing his mind. His chain was loose. She was baking a cake. I have a piece of it. Did you lose your almanac? I gave it to my neighbor. Was it necessary to keep me waiting so long? Do not disappoint me so often. Do not deceive me. The children are hopping. This is certainly true. If we have patience we shall certainly succeed. He met with a severe accident. Sometimes children are not sensible. You had no business to answer him. The ride was very fatiguing. I appreciate your kindness, I assure you. Intelligent persons learn by experience. He is thoroughly conscientious; therefore I trust him.

3. Write a composition of fifty words on the subject, "Coasting."

To the teacher: Do not allow them to use any books for reference, and do not allow them to get any help in spelling the words they use. The object of this question is to find out how they spell the words they use in everyday life.

TABLE X. SPELLING

PERCENTAGES

No.	Question 1				Question 2	
	"One Teacher" Schools		Graded Scaools		"One Teacher" Schools	Graded Schools
	51 Boys	74 Girls	96 Boys	87 Boys	166 Boys and Girls	206 Boys and Girls
1	87	86	81	79	99	99
2	89	92	83	88	79	70
3	81	83	74	84	99	97
4	85	59	68	67	79	71
5	85	77	74	91	98	99
6	69	71	58	81	85	87
7	81	75	75	88	95	92
8	63	68	67	72	84	88
9	71	83	81	84	98	99
10	81	75	83	74	96	94
11	83	84	66	87	89	88
12	88	88	93	97	94	95
13	39	49	44	41	99	96
14	69	73	65	77	93	89
15	69	65	57	71	58	55
16	68	65	60	72	89	80
17	68	68	80	90	95	91
18	50	68	37	40	77	73
19	75	75	63	72	98	98
20	75	71	58	63	98	96
21	79	73	63	87	51	42
22	91	94	83	90	78	78
23	69	64	58	50	98	91
24	84	77	71	55	91	89
25	95	90	86	96	91	89
26	69	67	52	63	87	77
27	95	90	88	98	87	78
28	81	69	64	82	96	90
29	61	66	57	79	88	83
30	41	48	43	54	93	91
31	55	51	39	52	99	100
32	32	33	28	20	77	67
33	87	75	80	81	76	70
34	63	51	61	64	95	98
35	41	48	39	34	97	100
36	42	42	45	41	54	52
37	63	57	58	63	69	65
38	83	79	78	94	98	94
39	34	36	32	19	92	93
40	69	63	49	66	78	67
41	95	68	84	95	95	98
42	42	58	34	43	97	99
43	79	81	71	87	79	78
44	58	56	49	58	57	56
45	50	51	53	49	37	32
46	51	63	45	55	85	83
47	87	73	69	80	94	99
48	64	72	65	86	95	100
49	87	66	74	82	..	..
50	71	58	64	75	..	..

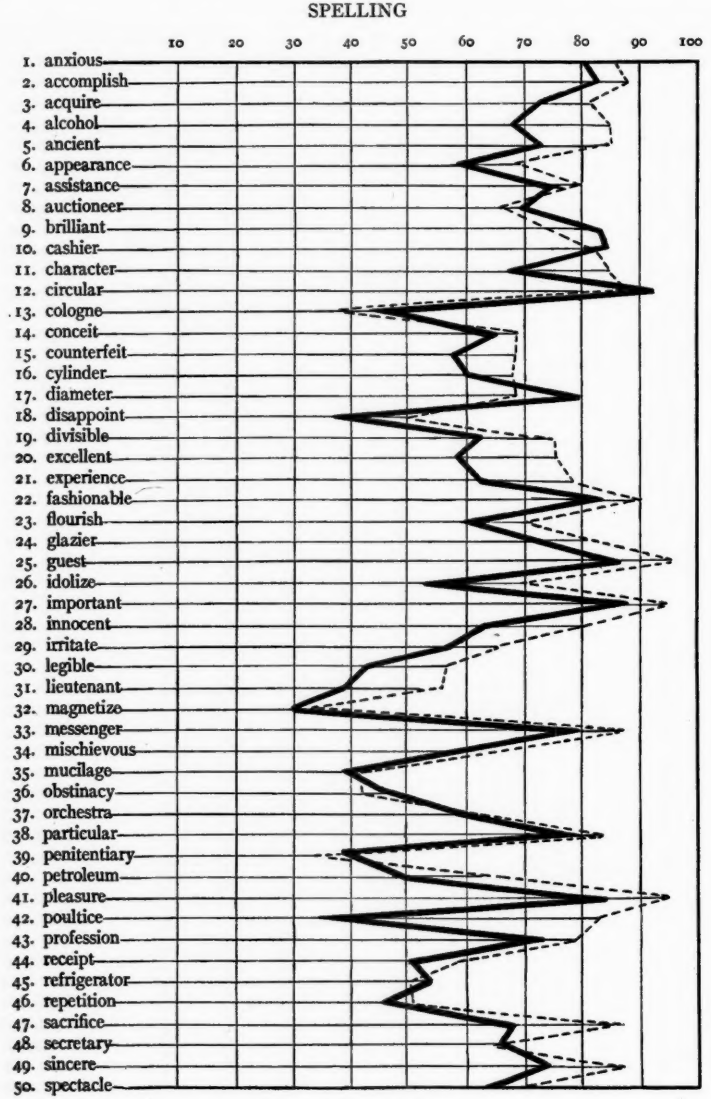

FIG. 11.—PART I—BOYS

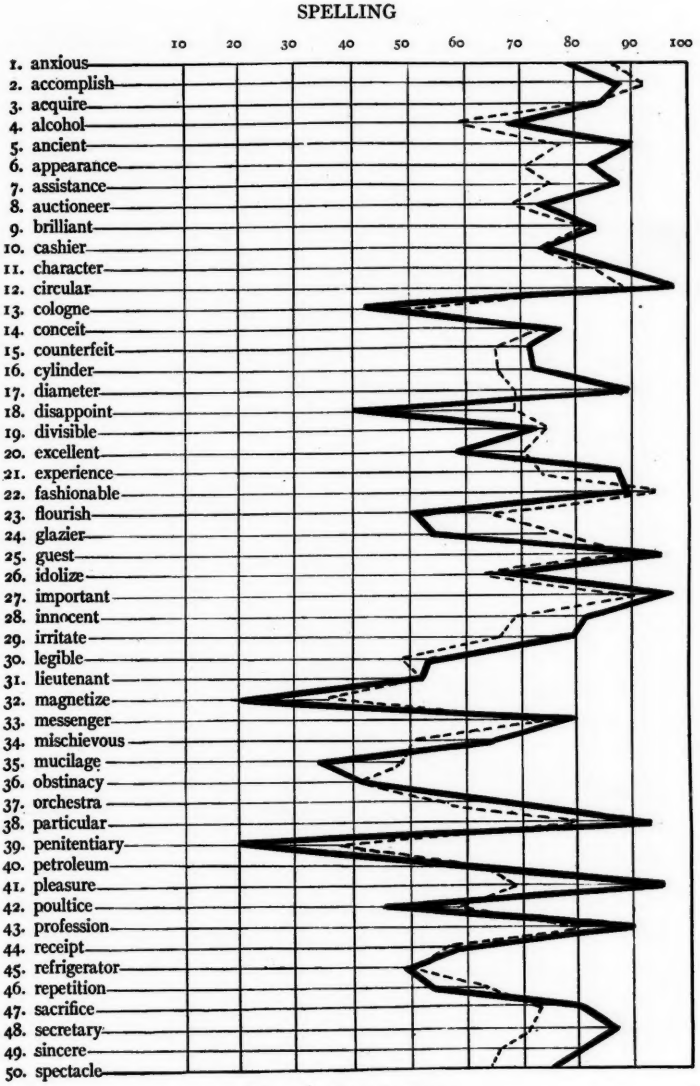

FIG. 12.—PART I—GIRLS

The same method of marking was employed in both the first and second parts. In the second part—the dictation exercise—the words that were most likely to be missed were numbered and a record kept of the number of times each word was missed. The results of the first part are recorded in the curves in Fig. 11. In this curve the graded schools surpass the "one teacher" in only three places, the twelfth, the seventeenth, and the thirty-sixth words—"circular," diameter," and "obstinacy." "Circular" was the easiest for the graded, and "accomplish" for the "one teacher" schools, while for both "magnetize" was the most difficult. The most frequent error in spelling "magnetize" was in substituting "i" for "e."

In the second list "slipped" was the easiest word numbered and "conscientious" the most difficult. Here again the curves for both systems have the same general direction, but the graded system goes above the "one teacher" system twelve times, on the words "whistling," "changing," "mind," "baking," "sometimes," "answer," "ride," "assure," "persons," "learn," "trust," and "him." In none of the above cases was the percentage of words spelled below 85. It would therefore seem that the grade children excel in spelling the simplest words. The most difficult for both systems were the words "lost," "disappoint," "fatiguing," and "conscientious." The curve on these words favors the "one teacher" schools. In addition to the numbered words the following words were misspelled in the grade system: "no," "to," "often," and "very," twice each; "gave," once; and "always," three times. In the "one teacher" system "no" was misspelled four times; "often," twice; and "very," once. "No" and "to" were misspelled by the substitution of "know" and "two." "Disappoint" occurs in both lists and was spelled correctly an average of 52 per cent of times, and in the second, 50 per cent of times. In the composition there did not seem to be much difference in style or in the character of the words used by the pupils of the two systems. No record was kept of the words misspelled in this question, but only of the number. There was a total of 133 missed by the grade children, or an average of .65 of a word for each paper submitted, and 37 missed by the "one teacher" school pupils, or an average of .25 of a word for each.

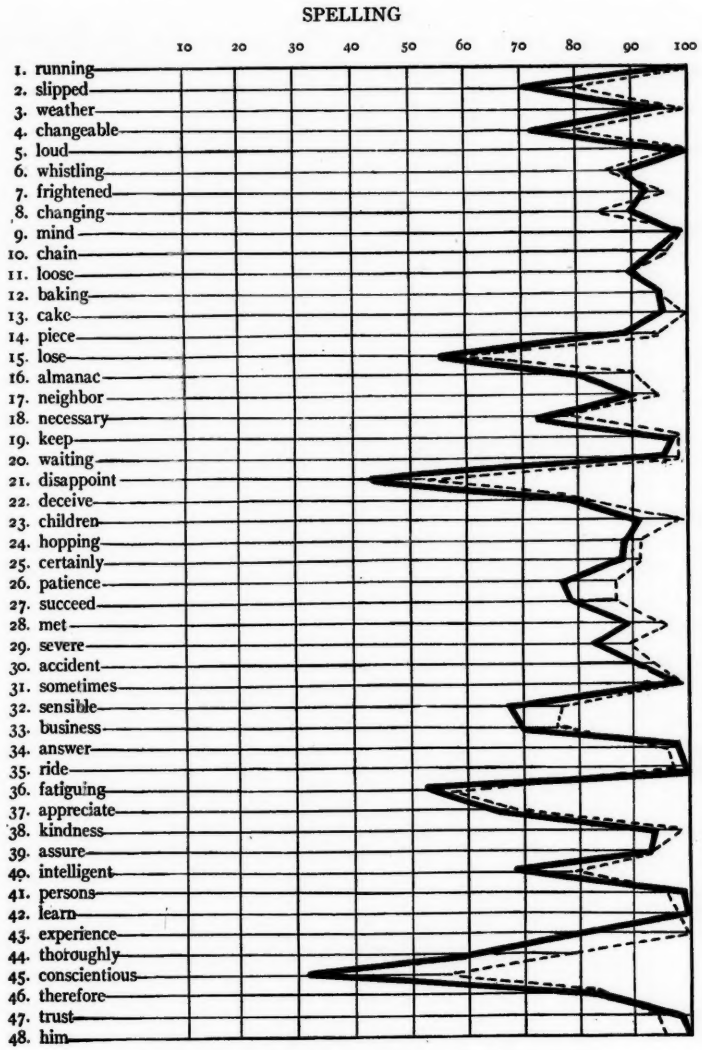

FIG. 13.—PART II—BOYS AND GIRLS, NOT SEPARATED

CONCLUSIONS

The papers were generally well written. There was little variation in the number submitted in the different subjects, and the questionnaires were well answered, all of which goes to show the interest of both pupils and teachers in the examinations. The results indicate that the pupils from the "one teacher" rural schools knew more about the work covered than did those from the grade schools. The difference is not great but nevertheless there is a positive difference. In the beginning of this study it was assumed that the conditions were equal, and that any difference that might be found in the results could be attributed to the organization of the schools into grades. Later developments have shown some factors at work that could not be predetermined.

From the grade schools 114 boys and 97 girls handed in papers; from the "one teacher" schools there were papers from 57 boys and 112 girls. Expressed in percentage terms there were 54 per cent boys and 46 per cent girls in the graded, and 34 per cent boys and 66 per cent girls in the "one teacher" schools. It might be argued that since girls are better developed at that period of life, this preponderance of girls in the country schools would make the difference found in the returns. This was not found to be a sufficient explanation of the difference in the results, because when the boys were compared with the boys, and the girls with the girls, the same relation was present.

MANUAL ACTIVITIES IN THE ELEMENTARY SCHOOL[1]

JESSE D. BURKS, PH.D.
Director of the Bureau of Municipal Research of Philadelphia

A distinguished New England theologian was once asked whether he considered Christianity to be a failure. He promptly replied: "I do not know, it has never yet been tried." Somewhat similarly, we might say that it is impossible to pass intelligent judgment upon manual activities in the elementary school for they have not been given a thorough and intelligent trial.

For thirty-five years educational leaders have had much to say concerning the need for manual activities in elementary education. During the latter part of this period the number of schools having manual training in their curricula has rapidly increased, until now one-half of the thirteen hundred organized local school systems in the United States have this subject in one or more of their elementary grades. In only one hundred and fifty of these cases, however, does handwork extend through all of the grades of the elementary schools, and of the six hundred school systems having manual training, three hundred give less than an hour a week to the subject, and only thirty-seven as much as half an hour a day.

These facts justify the statement that the country at large has not taken seriously the manual-training propaganda. Vastly more has been said than done and, with a few notable and gratifying exceptions, manual training remains in the main an isolated, abstract, and unprofitable fad; attached to, rather than incorporated in, the curriculum of the elementary school.

This means, of course, that, notwithstanding the notable advance in a few communities, the country as a whole has lost a

[1] Address delivered before the National Council of Education, on presentation of the report of the Committee on the Place of Industries in Public Education, J. D. Burks, chairman of the committee.

magnificent opportunity for educational achievement. Enough time, money, and energy have been expended upon manual training in elementary schools during the past twenty-five years to have demonstrated the claims of its advocates—to have convinced the entire country that manual activities are not only desirable, but indispensable, in elementary education. Tax-payers have waited for facts while educational leaders have furnished opinions.

An inquiry was recently made among one hundred and fifty superintendents of schools, in cities having elementary manual training, as to the available evidence concerning the value of manual training. These superintendents were asked to indicate what records they had of work done and results obtained that would show the effect of manual training upon (*a*) regularity of attendance; (*b*) continuance of pupils in school (elimination); (*c*) rate of progress of pupils (retardation); (*d*) progress of pupils in other school subjects; (*e*) physical welfare of pupils, and (*f*) successes in vocations. They were asked also as to the available evidence concerning (*g*) the most profitable time allowance; (*h*) the value of manual training as an index of specific mental and physical traits; (*i*) specific abilities developed by various types of handwork; (*j*) the relative importance of native abilities and special training in determining successes in various types of school work and vocations.

It is extremely significant that 67 per cent of these superintendents stated that they had no data whatever upon these points, and that only 15 per cent stated that they had evidence on as many as five out of the ten points in the list.

In the absence of concrete evidence, school boards and tax-payers naturally and properly have maintained a skeptical attitude toward manual training. If there were no other reason this would be sufficient to explain the weak grip that manual training now has on the educational practice of the country.

For there is another important explanation of the failure of manual training to win its way. The very term "manual training" suggests the now discredited "faculty psychology" with its will-o'-the-wisp of general discipline.

In the general movement toward social aims and social motives in education, manual training has to a very large extent lagged behind. Possibly it is no farther behind than other subjects in the curriculum; but by reason of its early promise much more was expected of this subject than of others in support of a social program for the elementary schools. It is this demand for a more concrete and more distinctly social program that explains the extraordinary transformation of manual training that is now in progress.

The remarkable interest in industrial education, which is now probably the dominant factor in the educational thought of the country, has all but eclipsed the interest in elementary manual training. It is significant that the program of the manual-training department at the present session of the National Education Association is given over almost entirely to the consideration of industrial education, and this has been true of the programs of this department for the last three or four years.

Other evidences of the rising tide of interest in the industrial as opposed to mere manual activities in the school are of course familiar. Laymen and professional leaders of education alike have deplored the social injustice of a school system which provides directly for the special needs of the 25 per cent of children who ultimately enter the commercial and professional pursuits, but ignore the requirements of the 75 per cent who enter industrial pursuits. National and state teachers' associations have devoted a large part of their programs to the discussion of this urgent issue; a new department of the National Education Association has been established for the study and promotion of technical education; state legislatures, special commissions, a national society for the promotion of industrial education, manufacturers' associations, the United States commissioner of education, the governors of many states, the President of the United States, the American Federation of Labor, and numerous other bodies and individuals have added the weight of many preambles and resolutions to the nation-wide demand that the schools draw nearer to human needs and equip our boys and girls for the struggle of modern industrial life. The educa-

tional and general press has given the subject a degree of publicity that is rarely accorded any similar matter. The whole country has repeatedly been astounded by the statement that, according to the report of the state commission on industrial education, twenty-five thousand children in Massachusetts between the ages of fourteen and sixteen were either idle or at work.

During these years, elementary manual training, with only a distant relationship to vocational pursuits, like Cinderella has remained demurely in the background, waiting for some fairy godmother to change her tattered rags into silken robes.

More important than these reasons for the failure of manual training to hold its own in the struggle for recognition and support, however, is the fact that educational leaders themselves have not yet found a consistent and defensible basis upon which to develop a program of handwork in the elementary school.

One of the most significant features of the report on the place of industries in public education is the fact that it definitely recognizes the place of industries in elementary education, and presents a program which it is hoped will hasten the metamorphosis of manual training. The report was originally projected "for the purpose of collecting data concerning the manual training work done throughout the country," and to suggest "courses adaptable to various conditions."

While the report in its general scope is somewhat larger and possibly somewhat different from that originally proposed, the committee believes that, in view of current tendencies in thought and practice, it has properly interpreted the spirit of the resolution under which it has carried on its work.

The report of the subcommittee on industries in the elementary school attempts to sum up and put into coherent and concise form the results of the best thought and practice of recent years. If this service has been acceptably rendered, the reports should furnish at least a provisional starting-point for a more intelligent program of manual activities in the elementary school than has heretofore been attempted. That such a platform is sorely needed is evidenced by the striking lack of agreement

among educational leaders as to the significance of manual activities in the elementary school.

In the inquiry before referred to, the superintendents were asked to indicate the importance which they attach to each of eight suggested values of manual training in the elementary school. These eight suggested values were as follows: (*a*) general mental training—e.g., accuracy, honesty; (*b*) general manual skill—e.g., precision, dexterity; (*c*) industrial intelligence—e.g., ability to learn a trade quickly; (*d*) specific abilities—e.g., skill in a particular process; (*e*) vital motive for school work otherwise uninteresting; (*f*) makes stronger and more lasting the results of instruction; (*g*) intelligent appreciation of industrial life; (*h*) culture—enrichment of intellectual and social experience.

In order to summarize these estimates of value, I have counted the number of cases in which a superintendent placed each of the suggested values in the upper half of his own list, that is, first, second, third, or fourth in order of importance. Rated in this way the list stands as follows: general mental training, 65; industrial intelligence, 57; general manual skill, 55; vital motive for school work, 50; intelligent appreciation of industrial life, 45; strengthening the results of instruction, 40; culture, 40; development of specific abilities, 20.

General training is given first rank by 29; culture by 20; and general manual skill by 17.

It is instructive to note that while the great majority of the superintendents were perfectly frank in admitting the lack of concrete evidence as to the effect of manual training upon the mental and physical development of children, they had no hesitation whatever in making a definite rating of each of the suggested values for manual training.

One of the superintendents frankly states that he has not studied the question and gives no answers. One states that his estimates are guesswork; one feels much uncertainty beyond the first two or three; and one states that in his judgment the importance varies with the pupils. The others give definite esti-

mates, in almost all cases assigning weight to each of the eight suggested effects.

These answers make it evident that there is no general agreement among our active leaders in education as to the place of manual training in the elementary school. Unless there can be a more widespread agreement, tentatively, at least, upon the place of industries in the elementary school, we cannot expect results during the coming decade to be more favorable than those of the past decade.

If the conclusions of the committee's report can command the confidence of educational leaders, and can be accepted as a point of departure, a tremendous step in advance will have been taken. In addition to this there should be a concerted effort to avoid one of the most serious mistakes of the past by providing for definite records of work undertaken and results accomplished, that will enable teachers, superintendents, members of boards of education, and citizens everywhere to read the story of achievement for any school or system of schools that has such a story to tell.

When educational leaders are in position to support their arguments by adequate records of work done and results accomplished, they will get not merely the uninformed and passive approval, but the active and intelligent co-operation of the communities whose educational interests they serve. With such co-operation under informed leadership in every community, we shall approach the time when sham and inefficiency will be eliminated from our system of education and 100 per cent of our children will get 100 per cent of the value that school training should represent.

EDITORIAL NOTES

Editorial Announcement

The *Elementary School Teacher* has arranged with the Executive Committee of the Illinois Superintendents' and Principals' Association to print the reports prepared each year by the Committee of Seven of that association, and to print any announcements which the Executive Committee may wish to send out from month to month to members of the association.

Value of Meetings Based on Prepared Reports

The annual meetings of this association are unique among educational gatherings in that they take up for careful consideration a report prepared by the Committee of Seven, dealing with some phase of the course of study in the elementary school. The careful study of a local problem by those who are engaged in school work is significant for the members of the association and it is also important as an example to other associations. The *Elementary School Teacher* will profit by its connection with the association, because the chief function of this journal is to promote co-operative investigation of elementary school problems. If other associations would undertake in the same fashion to prepare exhaustive reports for discussion, this journal would welcome the opportunity of co-operating with them.

The following announcement prepared by the officers of the association is inserted as the first announcement of the association work. Hereafter space will be given to these announcements directly following the editorial page.

The Committee of Seven

The Committee of Seven of the Northern Illinois Superintendents' and Principals' Association, which has for several years been engaged in working out an Outline Course of Study on a Scientific Basis, hopes to complete its sixth annual report in a few weeks.

The members of the committee for 1910–11 are: Principal

D. A. Tear, Chicago, Professor O. W. Caldwell, The University of Chicago, Professor C. W. Whitten, State Normal School, De Kalb, and Superintendents M. G. Clark, Streator, R. G. Jones, Kewanee, J. L. Smith, Highland Park, and H. A. Bone, Batavia. The first meeting of the committee was held June 11, and an organization was effected by electing Dr. Tear chairman and Professor Whitten secretary.

The report this year will deal with the subject of elementary science. It is proposed to show the necessity of instruction in elementary science by a discussion of the "Relation of the Child to Nature." This will be followed by a discussion of the "Place and Purpose of Science in the School." It is the present plan of the committee to follow these discussions with a suggestive course of study. Recognizing the controlling influence of local conditions the committee scarcely hopes to be able to present a course suitable for adoption in all schools. It does hope, however, to illustrate in a concrete way the factors which must control in the selection of a course.

The committee has met monthly beginning with September. Messrs. Tear and Clark have reported on the psychological and pedagogical phases of the topic and this portion of the report is rapidly assuming permanent form. Tentative courses of study by Messrs. Jones, Bone, and Whitten have also been discussed by the committee.

Professor Ira B. Myers of the University of Chicago is co-operating with the committee and has rendered excellent service in the organization of the report thus far.

The New Report of the Commissioner of Education

There is a very widespread feeling of appreciation for the promptness with which the Commissioner of Education is getting out his reports. The value of these reports is much increased by their appearance at the close of the year.

The educational directory, for example, is of immediate value to everyone who has to do with other educators; and the descriptive material which appears in these volumes is not only of importance as history, but is of value for immediate use because of its prompt appearance.

Contents of the Volume

The Commissioner's introduction is of special interest in the 1910 volume. It gives a general view of important movements in all departments of education, and should be read by all teachers. Most teachers feel that these ponderous official volumes have little in them of immediate personal interest to those who are engaged in classroom work. A general survey of education such as the present tends to correct this impression, and to draw attention to the movement of American educational activities. A number of the special articles in the first volume of the report should be of very great interest to teachers. This is specially true of the articles on "Agricultural Education" and the "Prussian System of Vocational Schools." There is a very complete review of educational progress in other countries.

BOOK REVIEWS

A Bibliography of History for Schools and Libraries, with Descriptive and Critical Annotations. By CHARLES M. ANDREWS, J. MONTGOMERY GAMBRILL, AND LIDA LEE TALL. Published under the auspices of the Association of History Teachers of the Middle States and Maryland. New York: Longmans, Green & Co., 1910. Pp. xiv+224, and 24 blank sheets. 60 cents.

This bibliography was begun by a committee of the Maryland History Teachers' Association appointed in 1908 to prepare reference lists upon American history and upon historical and biographical stories for children of elementary-school age. The lists were first published by the *Atlantic Educational Journal* and afterward enlarged and published under the auspices of the Association of History Teachers of the Middle States and Maryland.

The present form of the work includes the following subjects: The Study and Teaching of History and Historical Aids, World Histories, Ancient History, European History, English History, American History, Histories of Other Countries, Historical Stories for the Elementary Schools, and Stories for Children Preparatory to History. Out of its 204 pages, 104 are devoted to American history including the following subdivisions: bibliography; collection of documents; physiography; general histories; periods; constitutional, diplomatic, financial, industrial, economic, and political history; state histories; and biographies.

The authors believe that the book "will supply a real need of teachers both in elementary and secondary schools and will be useful to college instructors as well; that in the high school and college it may be used to advantage by students in connection with their regular work; and that it will prove serviceable to the general reader, to the student working alone, and in the public library."

Certainly there is a great demand for a work of this character from various classes of students and teachers. We have many bibliographies upon special periods of history and for advanced students but no single volume covering the whole field or giving annotated lists of books for children. These annotations describing critically the character and scope of each book should be of very great service. The lists of children's histories and stories are of especial importance for elementary teachers who have little time to investigate for themselves the merits of the numerous books now available for supplementary reading. The work was undertaken primarily for the assistance of elementary-school teachers and, although changed in plan, it has fulfilled remarkably well its original purpose. It will save much time and effort to find listed here the best material for teaching any period of history and even an estimate of the merits of the individual works.

This is one of the most important books recently published in the field of history and should contribute much toward improvement in the teaching of this subject.

E. J. R.

A Primary History: Stories of Heroism. By WILLIAM H. MACE, Professor of History in Syracuse University. Chicago: Rand, McNally & Co., 1910. Cloth. 8vo, pp. 396.

This book gives a simple and interesting story of American history by means of biographies, grouped according to periods. The purpose of the author has been "to bring before the mind of the pupils a series of great historical characters. These men do interesting things from the beginning to the end of life. Because their deeds are concrete and physical, they are easily pictured in imagination." The biographies are unusually well selected to give various types of heroism, emphasizing the services rendered to the country by overcoming great obstacles in its industrial development as well as by fighting its battles.

The author has wisely taken advantage of the charm always attached to biography. Children are not attracted by a brief, summarized treatment of events. It is the dramatic personal story that arouses interest. This is a principle well understood by teachers but rarely followed by writers of textbooks.

Professor Mace has not only written entertaining stories of the great men who made the nation but has also related these stories in such a way as to give a connected study of our history. Better still, each character is presented with some background of social environment which brings the child nearer to the understanding of historical problems than the mere story. However, the book covers too much ground to be entirely successful. The child's imagination cannot picture the social situation in any period without more detailed statements. For this reason it is doubtful if any one-volume textbook covering the whole of American history can ever be satisfactory. At least, such a textbook should be used in connection with supplementary reading offering fuller treatment of social life.

The style of this book is so vivid, simple, and clear that children of the fourth and fifth grades read it easily and enjoy it thoroughly. It is well illustrated with both pictures and maps.

E. J. R.

Practical Agriculture. By JOHN W. WILKINSON, A.M., Assistant State Superintendent of Oklahoma. Chicago: American Book Co., 1910.

This elementary and very much condensed treatise on agriculture, horticulture, forestry, stock-feeding, animal husbandry, and road-building forms a very interesting and instructive book for public-school use. Some historical matter concerning certain phases of agriculture is introduced, besides occasional statistical tables which are based on the most recent investigations by the government and state experiment stations. Every chapter contains valuable information and helpful suggestions, especially those dealing with fertilizers and the propagation and improvement of plant varieties. The criticism which may be applied to the whole book, namely, too superficial treatment, applies particularly to the chapters on horticulture with its subdivisions of vegetable, flower, and landscape gardening, and fruit growing. One finds himself wishing that the author had left out such subjects as "Civic Improvement," "Roads," and "Fuel and Light," which are so closely related to agriculture, and allowed more space for further development

of some of the remaining topics. The book abounds in illustrations, most of them appropriate and well executed, especially those on the subject of animal industry.

C. F. PHIPPS

Travels in History. By MARK TWAIN. Selected from the works of Mark Twain by C. N. KENDALL, Superintendent of Schools in Indianapolis. New York: Harper & Bros., 1910. Pp. 170. 50 cents.

This volume, small in size but great in scope, contains well-chosen and carefully arranged selections from "The Prince and the Pauper," "A Connecticut Yankee in King Arthur's Court," and "The Personal Recollections of Joan of Arc." The book is timely, not only because of a general interest in the late "Mark Twain," but because these times demand literature that shall help to interpret, more directly, the spirit of our age to the growing young person. "In 'Mark Twain' we have the national spirit as seen with our own eyes," says Howells. In addition to the appeal mentioned, the selections have been admirably chosen so as to include adventure, pathos, much fun—in short, to present to pupils of the sixth, seventh, and eighth grades "Mark Twain" at his best.

JESSIE E. BLACK

Stories of the King. By JAMES BALDWIN. Chicago: American Book Co., 1910. Pp. 335. 50 cents.

In *Stories of the King,* James Baldwin has made a welcome addition to his already long list of supplementary readers for young people. These Arthurian tales, narrated as they are in twentieth-century English, make usable for immature readers some of the stories in Malory's *Morte D'Arthur,* adapted in content but too difficult in form for easy reading. The book may be used either as an introduction to a more serious study of the Arthurian legends, or to portray vividly to pupils in the intermediate grades what was noblest and most admirable in knighthood.

JESSIE E. BLACK

Voice Training for School Children. By FRANK R. RIX. New York: A. S. Barnes Co. Pp. 77.

In this book evolved from actual experience, we have a concise and clear statement of vocal method for use in schools. Mr. Rix explains the obstacles which arise in the effort to achieve good tone throughout the grades, and in simple, untechnical language gives ways and means of overcoming the difficulties. The text is arranged in paragraphs with headings in bold-faced type, facilitating the locating of special points. For teachers with or without professional training in the teaching of school music, this manual will be an inspiration to logical, intelligent work.

M. R. KERN

BOOKS RECEIVED

AMERICAN BOOK CO., NEW YORK

Ernstes und Heiteres: Tales by Modern German Writers. Edited by JOSEFA SCHRAKAMP. Cloth. Pp. 202. $0.35.

Historical French Reader. By FELIX WEILL. Cloth. Illustrated. Pp. 163. $0.40.

Easy Standard French. By VICTOR E. FRANÇOIS. Cloth. Pp. 171. $0.40.

Sociology and Modern Social Problems. By CHARLES A. ELLWOOD. Cloth. Pp. 331. $1.00.

Art Songs for High Schools. By WILL EARHART. Cloth. Pp. 283. $0.80.

The Mastersinger. By FRANK R. RIX. Cloth. Pp. 192. $0.65.

Joan of Arc French Composition. By H. A. GUERBER. Cloth. Pp. 68. $0.30.

C. W. BARDEEN, SYRACUSE, N.Y.

Plutarch on Education, embracing the three treatises, "The Education of Boys," "How a Young Man Should Hear Lectures on Poetry," "The Right Way to Hear." By CHARLES WILLIAM SUPER. Cloth. Pp. 192. $1.00.

Physical Training In and Out of School. By WILLIAM TORREY HARRIS. Cloth. Pp. 35. $0.50.

THE BOBBS-MERRILL CO., INDIANAPOLIS

The Golden Hour. Stories and Poems for Opening Exercises in the School-Room. By PRUDENCE LEWIS. Cloth. Pp. 360.

CHARITIES PUBLICATION COMMITTEE, NEW YORK

Wider Use of the School Plant. By CLARENCE ARTHUR PERRY. Cloth. Illustrated. Pp. 404. $1.25.

GINN & CO., BOSTON

Leading Events of Maryland History. By J. MONTGOMERY GAMBRILL. Cloth. Pp. 362. $0.90.

Industrial Studies. United States. By NELLIE B. ALLEN. Cloth. Illustrated. Pp. 335. $0.65.

GOVERNMENT PRINTING OFFICE, WASHINGTON

Statistics of State Universities and Other Institutions of Higher Education Partially Supported by the State. Paper. Pp. 20.

The Biological Stations of Europe. By CHARLES ATWOOD KOFOID. Paper covers. Illustrated. Pp. 360.

D. C. HEATH & CO., BOSTON

Farm Friends and Farm Foes. A Textbook of Agricultural Science. By CLARENCE M. WEED. Cloth. Illustrated. Pp. 134.

HENRY HOLT & CO., NEW YORK

The Silver Thread and Other Folk Plays for Young People. By CONSTANCE D'ARCY MACKAY. Cloth. Pp. 239. $1.10.

HOUGHTON MIFFLIN CO., CAMBRIDGE

American and English Classics for Grammar Grades. Cloth. Illustrated. Pp. 136. $0.55.

Selections from the Riverside Literature Series for Seventh Grade Reading. Chosen by SUPERINTENDENT PEARSE and the Principals and Teachers of Milwaukee. Cloth. Illustrated. Pp. 256. $0.40.

Selections from the Riverside Literature Series for Eighth Grade Reading. Chosen by SUPERINTENDENT PEARSE and the Principals and Teachers of Milwaukee. Cloth. Illustrated. Pp. 255. $0.40.

Children's Classics in Dramatic Form. Book Four. By AUGUSTA STEVENSON. Cloth. Illustrated. Pp. 211. $0.50.

THE MACMILLAN CO., NEW YORK

Elements of Business Arithmetic. By ANSON H. BIGELOW AND W. A. ARNOLD. Cloth. Illustrated. Pp. 254. $0.70.

Idealism in Education. By HERMAN HARRELL HORNE. Cloth. Pp. 183. $1.25.

A Text-Book in the Principles of Education. By ERNEST NORTON HENDERSON. Cloth. Pp. 593. $1.75.

Tillers of the Ground. By MARION I. NEWBIGIN. Cloth. Illustrated. Pp. 224. $0.50.

New Geographies. Second Book. By RALPH S. TARR AND FRANK M. MCMURRY. Cloth. Illustrated. Pp. 440. $1.10.

CHARLES E. MERRILL CO., NEW YORK

The Man without a Country, and My Double. By EDWARD EVERETT HALE. Cloth. Pp. 100. $0.25.

THE NEALE PUBLISHING CO., NEW YORK

Three Crimson Days. By HARRISON PATTEN. Cloth. Pp. 67.

RAND, MCNALLY & CO., CHICAGO

Pilgrim Stories. By MARGARET B. PUMPHREY. Illustrated by LUCY FITCH PERKINS. Cloth. Pp. 255. $0.45.

Little Rhymes for Little Readers. By WILHELMINA SEEGMILLER. Cloth. Illustrated. Pp. 87.

Old Fashioned Fairy Tales. Retold from the Poetic Version of Tom Hood by MARIAN FOSTER WASHBURNE. Cloth. Illustrated. Pp. 115. $0.45.

Commercial Geography. By EDWARD VAN DYKE ROBINSON. Cloth. Illustrated. Pp. 455.

ROW, PETERSON & CO., CHICAGO

The Primer. By HARRIETTE TAYLOR TREADWELL AND MARGARET FREE. Cloth. Illustrated. Pp. 120.

SILVER, BURDETT & CO., NEW YORK

Literature in the School. By JOHN S. WELCH. Cloth. Pp. 236. $1.25.

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CURRENT EDUCATIONAL LITERATURE IN THE PERIODICALS[1]

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ABBOTT, ALLAN. High school journalism. School R. 18:657–66. (D. '10.)

ADKINS, FRANK J. The compulsory evening school. Journ. of Educa. (Lond.) 42:789–91. (D.'10.)

ARMSTRONG, JAMES E. The high school lunch room. Educa. Bi-Mo. 5:154–58. (D. '10.)

BAGLEY, WILLIAM C. The Illinois educational commission. School R. 18:667–73. (D. '10.)

BAILEY, HENRY TURNER. Lest we forget drawing. Journ. of Educa. (Bost.) 72:651–52. (29 D. '10.)

BALDT, LAURA I. The relation of arithmetic to domestic art. Atlantic Educa. Journ. 6:7. (Ja. '11.)

BENNETT, CHARLES A. Visiting manual training schools in Europe. (7) Man. Train. Mag. 12:143–68. (D. '10.)

BENSON, ARTHUR C. The place of classics in secondary education. Liv. Age. 49:666–73. (D. '10.)

BERLE, A. A. Business men and education. Journ. of Educa. (Bost.) 72:653–54. (29 D. '10.)

BODINE, WILLIAM L. The value of compulsory education laws to school attendance. Educa. Bi-Mo. 5:140–42. (D. '10.)

BOLAND, GENEVIEVE. Taking a dare. Pedagog. Sem. 17:510–24. (D. '10.)

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BROWN, ELMER E. The lesson of the state universities. Educa. 31:280–88. (Ja. '11.)

BURNHAM, WILLIAM H. European investigations in school hygiene. Pedagog. Sem. 17:525–33. (D. '10.)

[1] Abbreviations.—Atlantic Educa. Journ., Atlantic Educational Journal; Col. Univ. Q., Columbia University Quarterly; Educa., Education; Educa. Bi-mo., Educational Bi-monthly; Educa. News, Educational News; Educa. R., Educational Review; Educa. T., Educational Times; El. School T., Elementary School Teacher; Journ. of Educa. (Bost.), Journal of Education (Boston); Jour. of Educa. (Lond.), Journal of Education (London); Liv. Age, Living Age; Man. Train. Mag., Manual Training Magazine; Pedagog. Sem., Pedagogical Seminary; Pop. Sci. Mo., Popular Science Monthly; Primary Educa., Primary Education; Relig. Educa., Religious Education; School R., School Review; School W., School World; Teach. College Rec., Teachers College Record.

CHAMBERLAIN, ARTHUR H. The vocational middle school. Man. Train. Mag. 12:105–13. (D. '10.)

CHARLES, FRED. Superannuation of teachers. School W. 12:441–43. (D. '10.)

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CONDON, RANDALL J. What the schools need. Educa. 31:313–34. (Ja. '11.)

COPE, HENRY F. College leadership and Sunday school efficiency. Relig. Educa. 5:493–500. (D. '10.)

CURTIS, JOHN B. Instruction of the blind in the Chicago public schools. Educa. Bi-Mo. 5:117–20. (D. '10.)

DENIO, HERBERT W. The founding of the University of Berlin. Educa. R. 40:473–87. (D. '10.)

DUNBAR, OLIVIA HOWARD. Three-cent luncheons for school children. Outlook 97:34–7. (7 Ja. '11.)

DYKEMA, PETER W. Music in public schools: rote singing (1). Atlantic Educa. Journ. 6:5–6. (Ja. '11.)

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FINDLAY, J. J. The dullness of school-masters. Educa. T. 63:480–82. (D. '10.)

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HALL, G. STANLEY. The national child welfare conference: its work and its relations to child study. Pedagog. Sem. 17:497–504. (D. '10.)

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RUSK, ROBERT R. Experimental education. Journ. of Educa. supplement. (Lond.) 32:835–38. (D. '10.)

ST. JOHN, EDWARD PORTER. Preparing the minister as an educator. Relig. Educa. 5:445–57. (D. '10.)

School education in Cape Colony. School W. 12:451–53. (D. '10.)

SHEPHERD, JOHN WILKES. The social spirit in the class room. Educa. Bi-Mo. 5:169–73. (D. '10.)

SIMONS, SARAH E. Imitative writing in the high school. Pedagog. Sem. 17:451–79. (D. '10.)

SNEDDEN, DAVID. The certification of high school teachers. Educa. 31:335–38. (Ja. '11.)

STAMPER, ALVA W. The financial administration of student organizations in secondary schools. School R. 19:25–33. (Ja. '11.)

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TIRRELL, WINTHROP. Summer apprenticeship in the Boston high school of commerce. School R. 19:34–41. (Ja. '11.)

The value of a country education to every boy: a talk with the host of Craftsman farms. Craftsman 19:389–94. (Ja. '11.)

WADE, FRANK B. On the ethical value of school athletics. Educa. Bi-Mo. 5:159–64. (D. '10.)

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WILLSON, ALBERT CLARK. School administration and supervision in Connecticut. Teach. College Rec. 11:55–69. (N. '10.)

WORKS, GEORGE A. Suggestions for a practical course in high school botany. School R. 18:674–79. (D. '10.)